

SUPPRESSION OF CHEMICAL REACTIVITY ON
SEMICONDUCTOR SURFACES

ABSTRACT

The present invention relates generally to compositions, kits and methods of providing improved semiconductor surfaces free of dangling bonds and free of strained bonds. One method provides for preventing interfacial reactions between a semiconductor surface and metal or dielectric comprising the steps of preparing a passivated semiconductor surface
5 using a valence-mending agent and depositing a layer of metal or dielectric on the valence-mended semiconductor surface. As further described, a semiconductor surface free of interfacial reactions between the surface and a second molecular species may include a semiconductor surface with one atomic layer of valence-mending atoms, wherein valence mending occurs after introducing the semiconductor surface to a passivating agent. The
10 present invention also includes a kit for preventing interfacial reactions from occurring on a semiconductor surface comprising a passivating agent and an instructional manual.